



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/577,113

04/24/2006

Yorishige Ishii

65341(70820)

1188

21874

7590

03/28/2008

EDWARDS ANGELL PALMER & DODGE LLP

P.O. BOX 55874

BOSTON, MA 02205

EXAMINER

AHMED, SELIM U

ART UNIT

PAPER NUMBER

2826

MAIL DATE

DELIVERY MODE

03/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,113	ISHII, YORISHIGE	
	Examiner	Art Unit	
	SELIM AHMED	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6-8 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) 2-5,9 and 13-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6-8 and 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/24/2006, 1/28/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of figure 6, including claims 1, 6-8 and 10-12 in the reply filed on 1/22/2008 is acknowledged. All other claims have been considered as non-elected inventions and hence not examined.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed with the application.

Information Disclosure Statement

3. The Information Disclosure Statements filed on 04/24/ 2006 and 1/28/2008 have been considered.

Oath/Declaration

4. The oath or declaration filed on 04/24/2006 is acceptable.

Drawings

5. The drawings filed on 04/24/2006 are acceptable.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was

made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 7-8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukasawa et al (US 6396082) in view of Kanbe (JP 2002-118270).

With regard to claim 1, Fukasawa discloses an optical device package structure (Fig. 3) comprising: an optical device (29); a lead frame (Not labeled in Fig.3 but in Fig. 2, Element 23, 24) having a mounting portion on which the optical device is mounted and a lead portion (Fig. 2, Elements 23, 24) electrically connected to the optical device; a wire (Fig. 2, Elements 35, 36) placed on a side of the lead frame on which side the optical device is mounted and electrically connecting the optical device with the lead portion (Fig. 3) a first resin (Fig. 3, Element 27) transmissive to the-light and through which light incident on or emitted from the optical device passes; and a second resin (Fig. 3, Element 38) at least part of which is placed on the side of the lead frame on which the optical device is mounted, the second resin sealing the optical device and the wire (Fig. 3) and having a coefficient of linear expansion lower than that of the first resin.

As discussed above, Fukasawa discloses all of the limitations of claim 1 with the exceptions of a mounting portion of the lead frame on which the optical device is mounted and second resin having a coefficient of linear expansion lower than the first resin. However, Kanbe discloses optical device being mounted on the lead frame (Fig. 3) and second resin having a coefficient of linear expansion (CTE) lower than the first resin (para [0018]). It would have been obvious to one having ordinary skill in the art at the time of the invention to mount

optical device on lead frame and second resin with lower CTE for higher heat resistance capabilities.

Regarding claim 6, further limitations are directed to the manner in which the product is made. Such limitation is not given significant patentable weight since they do not further limit the product structurally.

Regarding claim 7, Fukasawa discloses the optical device package structure as claimed in claim 1, wherein the second resin contains no mold release agent (Fukasawa is silent about the mold releasing agent).

Regarding claim 10, Fukasawa discloses the package structure as claimed in claim 1, further comprising a crack prevention structure (Fig. 3) preventing the first resin from cracking, wherein the crack prevention structure comprises the first resin, and the first resin has a lens portion (Fig. 3, Element 46) that collects light incident on or emitted from the optical device and a base portion (Fig. 3; Element 26b) continuous to the lens portion and has an area (Fig. 3, area of resin 27) smaller than an area of the mounting portion of the lead frame (Fig. 3; area of the resin 38) when viewed from a direction of emission or incidence of the light (Fig. 3; area of resin 28 is smaller than area of resin 38).

Regarding claim 11, Fukasawa discloses the optical device package structure as claimed in claim 10, wherein the base portion has a thickness

smaller than a thickness of the lens portion (Fig. 3. shows the lens portion is thicker).

8. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukasawa et al (US 6396082) in view of Kanbe (JP 2002-118270) as applied to claim 1 above, and further in view of Kameyama et al (2004/0188699).

Regarding claim 8, Fukasawa in view of Kanbe discloses all of the limitations of optical device package structure as claimed in claim 1, but does not disclose the first resin contains filler that reduces the coefficient of linear expansion of the first resin. However, resin with filler mixed in is disclosed by Kameyama (Abstract). It would have been obvious to one having ordinary skill in the art at the time of the invention to use resin with filler mixed in for excellent mechanical strength and humidity resistance.

Regarding claim 12, Fukasawa in view of Kanbe discloses all of the limitations of optical device package structure as claimed in claim 10 but does not disclose the second resin has a part placed on the side opposite from the side of the lead frame on which the optical device is mounted, and the part of the second resin is placed at least in a part of a portion other than the portion of the lead frame where the first resin is placed. However, Kameyama's Fig. 2C discloses such optical packaging structure. Elements 12 and 13 are first and second resin respectively. It would have been obvious to one having ordinary

skill in the art at the time of the invention to use such resin structure for improving mechanical integrity of the package.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SELIM AHMED whose telephone number is (571)270-5025. The examiner can normally be reached on 9:00 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571)272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/577,113
Art Unit: 2826

Page 7

SA

/Sue A Purvis/

Supervisory Patent Examiner, Art Unit 2826